ATLAS/EDG Task Force update, and an overview of WP8 experiment planning for immediate future

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Outline of presentation

- **Update on ATLAS/EDG Task Force work and Atlas planning**
- **Overview of other experiment plans for use of Grid facilities/services for tests and data challenges before Xmas**
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  - **ALICE**
  - **BaBar**
  - **CMS**
  - **D0**
  - **LHCb**
- **Summary**

ATLAS

- Use of Grid tools in DCs now and later in 2002
  - **Phase1**

    Atlas-EDG Task Force repeating with EDG 1.2. ~1% of simulations already done. (this is 'nearly' finished)

    - **Using CERN,CNAF,Nikhef,RAL,Lyon**
    - **9 GB input 100 GB output 2000 CPU hrs**

  - **Phase2**

    Starting in mid-November will make larger use of Grid tools with specialised pile-up production. Different sites will use different tools (EDG, Nordugrid,US tools). Based on results will define the organisation and scale of Grid based reconstruction in early 2003

- Oxana Smirnova presented at Atlas software week Sep 19 experiences with EDG software

http://documents.cern.ch/cgi-bin/setlink?base=agenda&categ=a02249&id=a02249s12t6/transparencies

  - Major obstacles and ‘solutions’
  - Minor problems
  - Achievements
  - Summary and a forward look (see next slide)

Summary of the Atlas experience in gridifying DC1 (O Smirnova)

- **Advantages of the Grid**:
  - Possibility to execute tasks and move files over a distributed computing infrastructure by using one **single personal certificate** (no need to memorize dozens of passwords)
  - Possibility do **distribute the workload** adequately and automatically, without logging in explicitly to each remote system
  - Possibility to do **worldwide production** in a perfectly coordinated way, using identical software (RPMs), scripts and databases
- **Where Atlas are now:**
  - Several Grid toolkits are on the market
  - EDG – probably the most elaborated, but still in development and hence we have encountered problems, some minor and some serious
  - This development goes **much** faster with the help of the users running real applications
  - Common efforts of the ATLAS-EDG Task Force proved that **it is possible to execute real tasks on the EDG Testbed already now**
  - **The Task Force work is continuing….the slope is upwards…giving feedback for both immediate and long term developments**
  - **Very positive working relations with middleware WPs have developed**

Draft Recommendations of Atlas/EDG Task/Force - included in report to be distributed in the next week

- A pre-requisite is that the infamous 2 'showstoppers' are fixed

- Testbed set-up
  - Need portable and non-invasive EDG installation tools
  - Set up runtime environment in a separate step
  - Streamline EDG services for 'authentication and authorisation'

- Job Management
  - Globus GASS Cache – can we avoid using this mechanism since it seems to be at source of many problems?
  - Resource Discovery – useful to review matchmaking algorithms and the way it uses Information Index attributes

- **Data Management**
  - **CASTOR**
    - **Need one step read/write access**
    - **Need to register files in Replica Catalogue**
  - **SE information and configuration**
    - **Reporting of disk space not always accurate**
    - **No quota for VO mount points**
    - **No easy way to browse files at a given SE**
    - **All these problems should be addressed as a whole and may lead to changes in SE configuration**
  - **Replica Management**
    - **We need a user friendly tool based on EDG Replica Manager functionality**
    - **Need to be able to browse and search logical file collections**
  - **Output File Management**
    - **Would like to be able to specify in JDL that output files be staged to a pre-defined destination and registered in an RC**

- **Information System**
  - **Would like a stable, dynamic and hierachical Information System(IS)**
  - **Would like a searchable and browsable Web Interface**
  - **Use IS for both Resource Discovery and Monitoring**
- **Documentation**
  - **Please can we have a central Document Server accessible immediately from EDG homepage**
  - **Please can we have concise user guides for each service with typical examples of usage**

- **Implications for Atlas**
  - **VO management at CERN linked to Secretariat**
  - **Look at Atlas s/w organisation to enable distribution by RPMs . Avoid cyclic dependencies, duplicate libraries etc..**
  - **? Integration of Atlas meta-databases with EDG tools**

ALICE

- **Deadlines are set by the delivery of the Physics Performance Report and associated productions are being run with AliEn. This is the top priority from now until Xmas**

- **However, depending on the stability of EDG and on the (ongoing) development of the AliEn-EDG interface may use the testbed extensively during 2003.**

BaBar

- Currently have
  - **VO in UK**
  - **RB at Imperial College**
  - **EDG 1.2.2 deployed at SLAC,IN2P3 and several UK sites**
  - **Can submit jobs to any of these sites**
- Goals
  - **Implement a Babar Metadata Calalogue to enable splitting a 'job' into several pieces running where data is**
  - **Investigate use of SE and Replica Manager**
  - **Investigate use of SRB as a local Replica Catalogue**
  - **Provide in a few weeks a simple remote job submission system for a few initial testers**
- **Remember that there have been 3 issues solved by local 'hacks' (what to do in future?)**
  - **use of LSF Batch Scheduler(uses AFS)**
  - **AFS File System used for User Home Directories**
  - **Batch Workers located inside of the IFZ (security issue)**

CMS

- **Production of ~200K simulated events starting mid-November (no Objectivity) for 3-4 weeks**
- **Start with CERN,Lyon,Ecole Poly,CNAF/Bol,Padova,RAL,IC**
- **Will use CMS gridified tools BOSS,IMPALA**
- **Will need standard EDG distribution (but will use own UI)**
- **Need ~100 nodes +300 Gbyte on a few SEs**
- **Probably no need now for formal task force but will need MW support**

- **Will test RB, RC, SE (but maybe not MSS) and will 'measure' performance**

  - **CPU occupation of resources**
  - **Job turnaround time**
  - **Number of evs/sec over a long period**
  - **Number of failures and reasons**

D0

- **Have already ran many events on the testbeds of NIKHEF and SARA**
- **EDG institutes which are in D0 -**
  - **Nikhef,Lyon,RAL,Karlsruhe,Prague + others**
- **D0 rpm's are already in the EDG releases** and will be installed on all sites. Currently setting a special VO and RC for D0 at NIKHEF
- . **Intend to run tests of whole sequence of event generation, Geant3,digitisation,reconstruction, analysis at several sites**
- **First tests in next few weeks before the review**

LHCb

- **New production tools being installed at CERN,Lyon,Nikhef,Bologna,RAL + ~10 smaller sites**

- **Basic Test**:
  - Run 500 event **MC generation**
  - Store on SE
  - Recover logs and histograms to CERN
  - Run **reconstruction.** Output to SE. Recover log files and histos.
  - Write reconstruction output to mass store (Castor)
  - Read Castor data with an **analysis job** outside Grid

- **If testing successful will use Grid for percentage of production over Christmas period (will testbed function over Xmas?)**

Summary

- **Current WP8 top priority activity is Atlas/EDG Task Force work**
  - **This has been a very positive experience and will continue at least until late November.**
- **Other experiments will be putting their applications on the testbed before Xmas**
  - **Not asking for formal taskforce, but will need MW/IT support**
- **Please expand testbed in a step-wise, controlled way**

- **We have to assume 2 major 'showstoppers' will be fixed**
- **We also need to have a stable information system**
- **And a usable system for read/write to CASTOR/HPSS/RAL datastore**
- **See Recommendations in Task Force report for further detail**

- **WP8 will maintain a role in architecture discussions, and it seems some of its members participate to HEPCAL 'reborn' as a short intense activity for next 2 months (competition for time of valuable people)**
- **Experiments are keen to use a 'stabilised' testbed as part of their data challenges. We need to really focus on this at the expense of other 'less essential' activities in key period up to January review**